



Commercial Back Pack Vacuum

OWNER'S MANUAL

Model BPV325H

120V., 60Hz., 12 Amps



FOR HOUSEHOLD OR COMMERCIAL USE

USA: *EURO-PRO OPERATING LLC*
94 Main Mill Street, Door 16
Plattsburg, NY 12901

Canada: *EURO-PROOPERATING LLC*
4400 Bois Franc
St. Laurent, QC H4S 1A7

Tel.: 1 (800) 798-7398

ONE (1) YEAR LIMITED WARRANTY

EURO-PRO Operating LLC warrants this product to be free from defects in material and workmanship for a period of one (1) year from the date of the original purchase when used for normal commercial or household use, subject to the following conditions, exclusions and exceptions.

Should your appliance fail to operate properly while in use under normal commercial or household conditions within the warranty period, return the complete appliance and accessories, freight prepaid to:

U.S.: **EURO-PRO Operating LLC**, 94 Main Mill Street, Plattsburgh, N.Y., 12901
Canada: **EURO-PRO Operating LLC**, 4400 Bois Franc, St. Laurent, Quebec, H4S 1A7

If the appliance is found to be defective in material or workmanship, **EURO-PRO Operating LLC** will repair or replace it free of charge. Proof of purchase date must be included. *

Non-durable parts including, without limitation, filters, rotating brushes, dust bags and electrical parts which normally require replacement are specifically excluded from warranty.

The liability of **EURO-PRO Operating LLC** is limited solely to the cost of the repair or replacement of the unit at our option. This warranty does not cover normal wear of parts and does not apply to any unit that has been tampered with. This limited warranty does not cover damage caused by misuse, abuse, negligent handling or damage due to faulty packaging or mishandling in transit. This warranty does not cover damage or defects caused by or resulting from damages from shipping or repairs, service or alterations to the product or any of its parts, which have been performed by a repair person not authorized by **EURO-PRO Operating LLC**.

This warranty is extended to the original purchaser of the unit and excludes all other legal and/or conventional warranties. The responsibility of **EURO-PRO Operating LLC** if any, is limited to the specific obligations expressly assumed by it under the terms of the limited warranty. **In no event is EURO-PRO Operating LLC** liable for incidental or consequential damages of any nature whatsoever. Some states do not permit the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province.

***Important: Carefully pack item to avoid damage in shipping. Be sure to include proof of purchase date and to attach tag to item before packing with your name, complete address and phone number with a note giving purchase information, model number and what you believe is the problem with item. We recommend you insure the package (as damage in shipping is not covered by your warranty). Mark the outside of your package "ATTENTION CUSTOMER SERVICE". We are constantly striving to improve our products, therefore the specifications contained herein are subject to change without notice.**



OWNERSHIP REGISTRATION CARD

Please fill out and mail the product registration card within ten (10) days of purchase. The registration will enable us to contact you in the unlikely event of a product safety notification. By returning this card you acknowledge to have read and understood the instructions for use, and warnings set forth in the accompanying instructions. **Return to:**

EURO-PRO Operating LLC, 94 Main Mill Street, Door 16, Plattsburgh, NY 12901

Model BPV325H

Appliance model

Date purchased

Name of store

Owner's name

Address

City

State

Zip Code

IMPORTANT SAFETY INSTRUCTIONS

When using your **Vacuum**, basic safety precautions should always be observed, including the following:

Read all instructions before using this vacuum.

WARNING: To reduce the risk of fire, electrical shock, or injury:

- Do not** leave vacuum cleaner unattended when it is plugged in. Unplug from outlet when not in use and before removing filters.
- To reduce the risk of electric shock – **do not** use outdoors or on wet surfaces.
- Do not** allow children to use as a toy. Close attention is necessary when used by or near children.
- Use only as described in this manual. Use only manufacturer's recommended attachments.
- Do not** use with damaged cord or plug. **Do not** use vacuum cleaner if it has been dropped, damaged, left outdoors, or dropped into water. Return appliance to **EURO-PRO Operating LLC** for examination, repair or adjustment.
- Do not** pull or carry by cord. **Do not** use cord as a handle, close a door on cord, or pull cord around sharp edges or corners. **Do not** run appliance over cord. Keep cord away from heated surfaces.
- Do not** unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- Do not** handle plug or vacuum cleaner with wet hands.
- Do not** use the vacuum cleaner to pick up large objects or objects that are likely to damage the vacuum cleaner.
- Keep hair, loose clothing, fingers, feet and all parts of body away from openings, rotating agitator and other moving parts. **Do not** operate cleaner in bare feet or when wearing open toe shoes.
- Do not** pick up hot coals, cigarette butts, matches or any hot, smoking, or burning objects.
- Do not** pick up hard or sharp objects such as glass, nails, screws, coins, etc.

- Do not** use without all filters in place. Use **ONLY** filters and accessories provided by **EURO-PRO Operating LLC**. Failure to do so will void the warranty.
- Turn off all controls before plugging or unplugging vacuum cleaner into electrical outlet.
- Use extra care when vacuuming on stairs.
- Do not** pick up flammable or combustible materials (lighter fluid, gasoline, kerosene, etc.) or use in the presence of explosive liquids or vapor.
- Do not** pick up toxic material (chlorine bleach, ammonia, drain cleaner, etc.).
- Do not** use in an enclosed space filled with vapors given off by oil based paints, paint thinner, moth proofing substances, flammable dust, or other explosive or toxic vapors.
- Use only on dry, indoor surfaces.
- Do not** use for any purpose other than described in this user's guide.
- The use of an extension cord is not recommended.
- Do not** put any objects into openings. **Do not** use with any opening blocked. Keep free of dust, lint, hair and anything else that may reduce air flow.
- Always store your appliance indoors in a cool, dry area.**
- Keep your work area well lit.
- Do not** immerse the vacuum into water or other liquids.
- Keep end of hose, wands and other openings away from your face and body.
- To avoid damaging the carpet, keep the vacuum cleaner head moving at all times.
- Connect to a properly grounded outlet only. See grounding instructions.

Warning: The power cord on this product contains lead, a chemical known to the State of California to cause birth defects or other reproductive harm. **Wash hands after handling.**

SAVE THESE INSTRUCTIONS

For Household or Commercial Use Only

GROUNDING INSTRUCTIONS

This appliance must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and grounding plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

WARNING: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

This appliance is for use on a nominal 120-volt circuit, and has a grounding attachment plug that looks like the plug illustrated at right. Make sure that the appliance is connected to an outlet having the same configuration as the plug. No adaptor should be used with this appliance.



PRECAUTIONARY MEASURES

Important: If the suction opening of the unit, the hose or the extension tubes are **BLOCKED**, switch off the vacuum cleaner and remove the blocking substance before you start the unit again.

1. Before inserting the power plug into the wall outlet, make sure that your hands are dry.
2. Before you start vacuuming, make sure to remove large or sharp objects that might damage the dust bag.
3. When pulling out the power plug from the wall outlet, pull the plug not the power cord.
4. **Do not** pick up anything that is burning or smoking such as cigarettes, matches or hot ashes.
5. **Do not** use without all filters and dust bag in place.
6. **Do not** vacuum any liquids.
7. Keep hair, loose clothing, fingers, feet and all parts of body away from openings, rotating agitator and other moving parts.

TROUBLESHOOTING GUIDE

TROUBLESHOOTING GUIDE		
PROBLEM	POSSIBLE REASON	POSSIBLE SOLUTION
Motor runs but no suction	<ol style="list-style-type: none"> 1. Hose extension tube or air inlet is blocked. 2. HEPA dust bag is full. 3. Hose not assembled to hose inlet properly. 	<ol style="list-style-type: none"> 1. Check for blockage (remove blockage). 2. Replace HEPA dust bag. 3. Insert hose into hose inlet and turn counter-clockwise until it locks into place.
Turbo brush does not rotate or rotates slowly	<ol style="list-style-type: none"> 1. Rotating brush or elbow obstructed. 2. Belt is broken. 3. Hose is obstructed. 4. HEPA pre-motor filter is blocked. 	<ol style="list-style-type: none"> 1. Clear obstructions. 2. Call 1 (800) 798-7398. 3. Clear obstruction. 4. Clean HEPA pre-motor filter.
Vacuum won't run	<ol style="list-style-type: none"> 1. Not firmly plugged in. 2. No electricity in wall outlet. 3. Blown fuse/tripped breaker. 4. Motor thermostat may have tripped. 	<ol style="list-style-type: none"> 1. Plug unit in firmly. 2. Check fuse or breaker. 3. Replace fuse/reset breaker. 4. Turn vacuum off and unplug from outlet. Allow unit to cool down before trying to switch on again.

ORDERING REPLACEMENT PARTS

TO ORDER REPLACEMENT BAGS

Item #XHB325H

For Model BPV325H

Call: 1 (800) 798-7398

Monday to Friday 8:30 A.M. - 5:00 P.M.
Eastern Standard Time

Please Note:

The **HEPA** pre-motor and exhaust filters may be washed. We recommend that this be done once a month or when suction appears reduced. To wash your **HEPA** pre-motor filter and exhaust filter, hold and rinse under lukewarm water. When finished, shake off excess water. **DO NOT** wash in dishwasher. It is important that when you wash any filter, you allow it to air dry **COMPLETELY** before using again. We recommend **24 hours** to air dry. **DO NOT DRY IN DRYER.**

IMPORTANT:

Both the **HEPA** pre-motor filter and the exhaust filter should be re-placed every **three (3) to six (6) months** depending on usage. All filters, the shake-out bag and **HEPA** dust bag should be checked regularly for signs of damage, preferable after each cleaning task. The **HEPA** dust bag, shake-out bag and filters must be replaced **immediately** if they become damaged. **Always** disconnect the vacuum from the electrical outlet when checking the filters. **NEVER re-use the HEPA dust bags. Always replace the dust bags with new ones.**

OPERATING INSTRUCTIONS

Warning: To reduce the risk of electric shock, the power cord must be disconnected before removing the dust bag, shake-out bag, changing the filters or performing maintenance or troubleshooting checks.

The HEPA pre-motor filter should be replaced every **three (3) to six (6) months** to ensure peak performance of your vacuum.

Changing & Cleaning the Exhaust Filter

Note: The exhaust filter is located in the front of the vacuum.

Important Note: This filter is a washable filter and can be cleaned by rinsing under lukewarm water.

Always allow the exhaust filter to air dry for **24 hours** before replacing in the vacuum. **Do not** use a hair dryer to dry it. **Air dry only.** To remove the exhaust filter:

1. While pushing up the exhaust tab, pull out the exhaust grill. (Fig. 25)

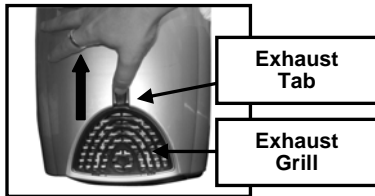


Fig. 25

2. Remove the exhaust filter.
3. Clean the exhaust filter by rinsing under lukewarm water.
4. After air drying for **24 hours**, replace into the vacuum.

Motor Thermostat

Important: This unit is equipped with a motor protective thermostat. If for some reason the vacuum cleaner should overheat, the thermostat will automatically turn the unit off. Should this occur:

- Turn the unit off.
- Disconnect the plug from the power source.
- Check the source of overheating problem. (i.e. clogged hose, full dust bag or filter).
- Wait at least **45 minutes** before attempting to reuse the vacuum.
- After unit has cooled down for **45 minutes**, plug in the cleaner and turn the unit on. The vacuum should start again.
- If the vacuum still does not start, contact customer service at: **1 (800) 798-7398**.

GETTING TO KNOW YOUR BACK PACK VACUUM



- | | |
|------------------------------------|-----------------------------------|
| 1. Main Unit | 15. Telescopic Tube |
| 2. Exhaust Grill | 16. Waist Band Back Support Panel |
| 3. On/Off Power Switch | 17. Waist Band Tool Carrier |
| 4. Canister Lid Tabs | 18. Dusting Brush |
| 5. Waist Band | 19. Crevice Tool |
| 6. Shoulder Straps | 20. Blower Port |
| 7. Back Board Panel | 21. Pet Hair Remover |
| 8. Carry Handle | 22. Floor to Carpet Brush |
| 9. Hose Inlet | 23. Air Driven Turbo Brush |
| 10. Canister Lid | 24. Blower Attachments (x3) |
| 11. Flexible Hose | 25. HEPA Dust Bag |
| 12. Flexible Hose Handle | 26. Shake-Out Bag |
| 13. Variable Suction Control | 27. HEPA Pre-Motor Filter |
| 14. Telescopic Tube Release Button | 28. Exhaust Filter |

Technical Specifications

Voltage: 120V., 60Hz.

Power: 12 Amps

* Note: Illustrations may differ from actual product.

OPERATING INSTRUCTIONS

Warning: To reduce the risk of electric shock, the power cord must be disconnected before removing the dust bag, shake-out bag, changing the filters or performing maintenance or trouble-shooting checks.

Assembling Your Vacuum Cleaner

Note: Always remove the power plug from the wall outlet before assembling or removing accessories.

Inserting the HEPA Dust Bag

Note: This unit can be used with the shake-out bag alone, however it must be cleaned after every use if there is no HEPA dust bag installed.

Important: DO NOT use the vacuum without all filters, shake-out bag, and with or without HEPA dust bag in place.

1. Unplug the hose connecting power cord and remove the flexible hose.
2. To open the canister lid press on the canister lid tabs on each side of the unit and lift canister lid. (Fig. 1)



Fig. 1

3. Pull the tab on the HEPA dust bag holder out slightly and flip upwards. (Fig 2)
4. Holding the HEPA dust bag in your hand, slide it firmly between the slots in the bag holder. (Fig 2)

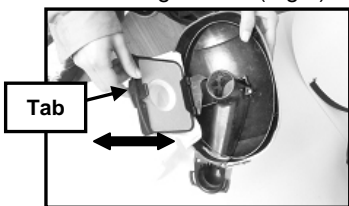


Fig. 2

5. The cardboard face of the new bag should rest securely in the dust bag cover guides. (Fig. 3)



Fig. 3

6. Ensure that the shake-out bag is in place. (Fig. 4)

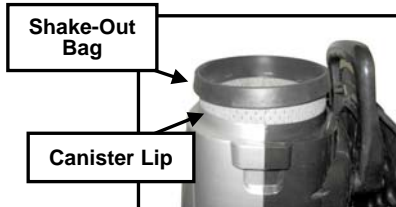


Fig. 4

7. Flip the HEPA bag holder over, pressing the tab on the bag holder until it clicks, then replace the canister lid.
8. The canister lid can be replaced on the unit with the hose opening on the right or left, as per your preference. (Fig. 5)

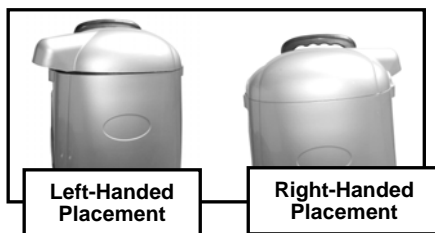


Fig. 5

OPERATING INSTRUCTIONS

Warning: To reduce the risk of electric shock, the power cord must be disconnected before removing the dust bag, shake-out bag, changing the filters or performing maintenance or trouble-shooting checks.

4. Replace the HEPA dust bag with a new bag. Do not reuse the same bag.
5. The cardboard face of the new bag should rest securely in the dust bag cover guides. (Fig. 24)
2. The shake-out bag is hand washable in lukewarm water.
3. Allow to air dry for 24 hours. The shake-out bag should be replaced when needed. Never replace into the vacuum if still wet.

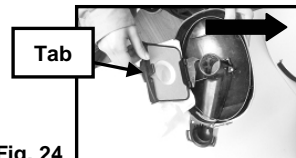


Fig. 24

6. Replace the shake-out bag into the vacuum.
7. To replace the HEPA dust bag holder, flip the holder and press tab until it clicks.
8. Replace the canister lid onto the vacuum.

Warning: Never over fill the HEPA dust bag – replace when bag is full and clean the shake-out bag and filter each time the HEPA dust bag is replaced.

Cleaning & Replacing the Shake-Out Bag

Note: Clean the shake-out bag out-doors when changing the HEPA dust bag. Optimum performance is achieved by using the HEPA dust bag with the shake-out bag decreasing the need for washing the shake-out bag.

Cleaning the Shake-Out Bag when Used with the HEPA Dust Bag:

1. Remove the shake-out bag, holding the handle at the bottom of the bag, shake outdoors vigorously over a garbage receptacle until there is no more dust.
2. Inspect shake-out bag regularly for tears or damage. Replace shake-out bags if damage or tears are present.

Cleaning the Shake-Out Bag when Used Alone:

It is recommended that the shake-out bag be washed after it has been used several times without the HEPA dust bag in place.

1. Remove the shake-out bag, empty contents into a trash can, and shake vigorously outdoors until there is no more dust.

Note: If used often without HEPA dust bag, replacement and washing will be required more often.

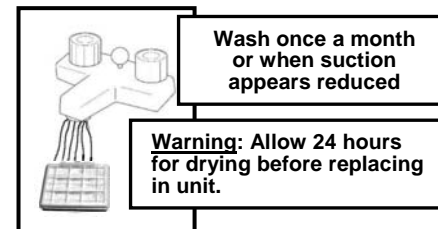
4. Replace clean shake-out bag in unit, and replace the canister lid onto the vacuum.

Cleaning the HEPA Pre-Motor Filter

Important, Please Note: The HEPA pre-motor filter will stop most of the tiniest dust particles and airborne allergens from re-entering the air you breathe. In fact it stops 99.97% of all particles as small as 0.3 microns - many times smaller than a human hair!

Because of this incredible filtration performance, the HEPA pre-motor filter will accumulate many fine dust particles that are difficult to see. Be assured that the HEPA pre-motor filter is doing the job. Clean the HEPA pre-motor filter after each use as described in this section.

1. Remove the shake-out bag from the canister. The HEPA pre-motor filter is located underneath the shake-out bag. To remove the HEPA pre-motor filter, lift the filter from the sides of the HEPA filter.
2. Vigorously "TapClean" the HEPA pre-motor filter on a hard surface to remove any residual dust that might still be on the HEPA pre-motor filter.
3. You can wash the HEPA pre-motor filter by running it under the tap and allowing the water to run on the dirty side at least once a month or when suction appears to be decreased.



OPERATING INSTRUCTIONS

- To blow up inflatable items, select the appropriate size blower attachment that will fit into the air valve. (Fig. 19)



Fig. 19

- Turn the unit on and hold the blower attachment and air valve while the vacuum exhaust is pumping air into the inflatable.
- To detach the flexible hose turn clockwise and pull out from blower port.

Note: Firmly hold the flexible hose by the attachment when blowing dirt or dust off of objects.

Using Your Vacuum

Warning: To reduce the risk of electric shock, the power cord must be disconnected before removing the dust bag, shake-out bag, changing the filters or performing maintenance or trouble-shooting checks.

- Insert the power plug into the wall outlet.
- Connect hose and telescopic tube if desired.
- Correctly place shoulder straps on each shoulder and secure the waist band with hook and loop strips. (Fig. 20)

Caution: If the waist band and both shoulder straps are not properly and securely in place the unit could fall off your back causing damage or injury.

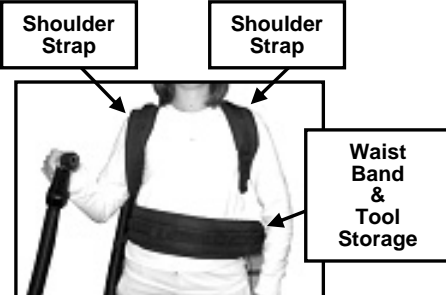


Fig. 20

- Turn the unit on by pressing the switch located near the base of the unit to turn the vacuum cleaner on. (Fig. 21)

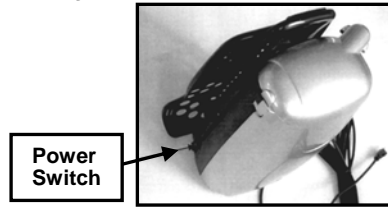


Fig. 21

Removing & Replacing HEPA Dust Bag

To remove the HEPA dust bag from the vacuum:

Important: DO NOT use the vacuum without all filters, shake-out bag, and with or without HEPA dust bag in place.

- To remove the HEPA dust bag, press on the canister lid tabs on each side of the unit and lift canister lid. (Fig. 22)

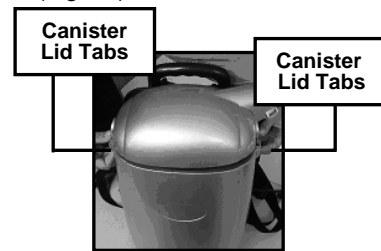


Fig. 22

- Pull the tab on the HEPA dust bag holder out slightly and flip upwards. (Fig. 22)
- Holding the HEPA dust bag in your hand, slide it out from the slots in the bag holder. Hold carefully in order to avoid having dust fall out of HEPA dust bag. (Fig. 23)

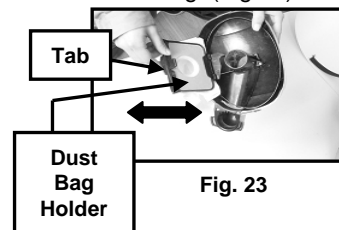


Fig. 23

OPERATING INSTRUCTIONS

Attaching the Flexible Hose to the Vacuum

The flexible hose should be connected to the vacuum before strapping the unit to your back.

- To connect the flexible hose into the hose inlet, insert the threaded end of the flexible hose into the hose inlet and turn counter-clockwise until it locks into place. (Fig. 6)

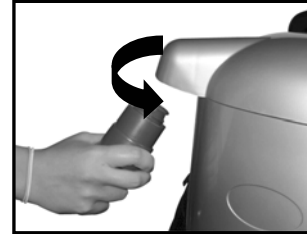


Fig. 6

- Plug the power cord into the electrical outlet.
- To remove the flexible hose, unplug the power cord and then turn the hose clockwise and pull the flexible hose out.

Attaching the Telescopic Tube to the Flexible Hose Handle

- Holding the telescopic tube, insert the handle into the telescopic tube receptacle. Push the handle in. (Fig. 7)

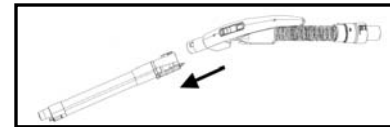


Fig. 7

- Push forward on the plastic button and pull the inner tube outward to extend for a longer reach. (Fig. 8)

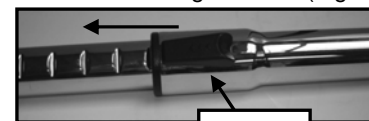


Fig. 8

- To remove the telescopic tube from the flexible hose, press on the telescopic tube release button and pull it out. (Fig. 9)



Fig. 9

Note: Always remove the power plug from the wall outlet before assembling or removing accessories.

Manual Suction Control

Your vacuum cleaner includes a manual variable suction control on the flexible hose handle. The suction power can be adjusted by moving the suction regulator to the desired position between Open and Closed. (Fig. 10) Open gives you less suction, closed maximum suction. For example, less suction is required on upholstery and draperies compared to thick carpets, which require maximum suction.



Fig. 10

Using the Floor to Carpet Brush

- To attach the floor to carpet brush to the telescopic tube, insert the telescopic tube into carpet to floor brush. (Fig. 11)



Fig. 11

OPERATING INSTRUCTIONS

- Step on the floor to carpet selector to adjust the height of the brushes. There are two (2) different heights one for floors and one for carpets. (Fig. 12)

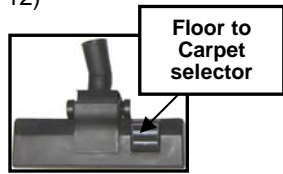


Fig. 12

- To remove the telescopic tube from the floor to carpet brush, pull the telescopic tube out from the floor to carpet brush.

Using the Attachments

Dusting Brush

The dusting brush is used for the furniture

Crevice Tool

Use for radiators, crevices, corners, baseboards and between cushions.

Pet Hair Remover Brush

The pet hair remover brush is used for upholstery. The unique surface makes it an excellent tool for removing unwanted pet hair.

Note: This tool is not a grooming tool and should not be used on animals.

Caution: Do not use pet hair remover brush on delicate or woven fabrics that may snag.

DO NOT use pet hair remover brush on wooden floors as this accessory might cause mild scratching.

Blower Attachments

The blower attachments can be used with the vacuum to pick up very fine dirt particles in tight crevices or spots, or to inflate inflatable items or air mattresses.



Using the Air Driven Turbo Brush

Warning: To reduce the risk of electric shock, the power cord must be disconnected before removing the HEPA dust bag, the shake-out bag, HEPA pre-motor filter, changing the filters or performing maintenance or troubleshooting checks. The efficiency of your air driven turbo brush depends on the bristle brush rotating at high speed. Strong air suction is needed to accomplish this. In order to ensure that maximum air suction is maintained, please read the following instructions:

- Change the HEPA dust bag or empty the shake-out bag frequently.
- Replace the pre-motor and exhaust filters as needed.
- Ensure that the rotating brush is kept free of hair and string which may accumulate and decrease brush performance.
- To attach the air driven turbo brush, insert the telescopic tube into the air driven turbo brush.

How To Clean the Air Driven Turbo Brush

From time to time, the turbine of your air driven turbo brush will require cleaning. To do this:

- Remove the turbo brush from the telescopic tube.
- Flip the turbo brush over so that the bottom of it is facing upwards. (Fig. 13)

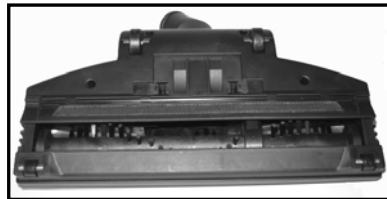


Fig. 13

OPERATING INSTRUCTIONS

- Using your thumb and index finger, simultaneously squeeze the locking tabs on either side of the trap door and lift off. (Fig. 14) Doing so will remove the trap door and allow you access to the turbine for cleaning and maintenance purposes. (Fig. 15)

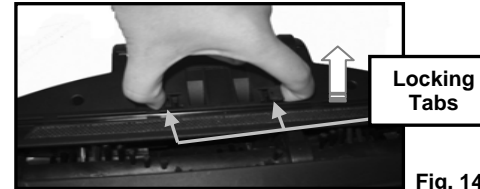


Fig. 14

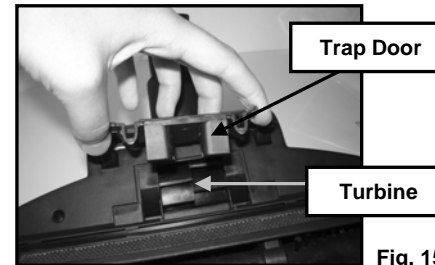


Fig. 15

- There may be some dust, lint, hair, etc on the turbine wheel. Remove as much of this as possible.
- You may also use the unit's hose with the crevice tool attached and use the vacuum to remove any additional debris from the turbine.
- Ensure that the turbine wheel moves freely by rotating it with your finger. If the turbine does not rotate, call **EURO-PRO** Customer Service for help at **1 (800) 798-7398**.
- Once clean, replace the trap door of the turbo brush. Ensure that it clicks into place.

Using the Blower Attachments

The blower attachments are extremely useful for vacuuming in hard to reach crevices and small compartments such as in cars.

Important Note: When blocking the air bleed holes, grasp the blower attachments firmly so that they do not blow off.

Note: Do not use blower function to clear dust off of fragile or delicate objects unless they are secured or held firmly in place as the blower action is quite strong and could cause damage.

The blower attachments have air bleed holes. These air bleed holes help relieve some air pressure so that the attachment does not blow off. However, should an increase in air pressure be desired, simply cover one or more of the air bleed holes.

To use the blower attachments:

- Pull up and hold the exhaust tab, with the free hand pull out the exhaust grill. (Fig. 16)

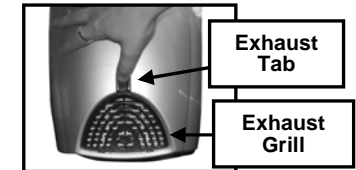


Fig. 16

- Remove the exhaust filter.
- To place the blower port into the exhaust outlet, align the lower tabs on the blower port with the slots on the exhaust. Pull up on the exhaust tab and push the top of the blower port until it snaps into place. (Fig. 17)

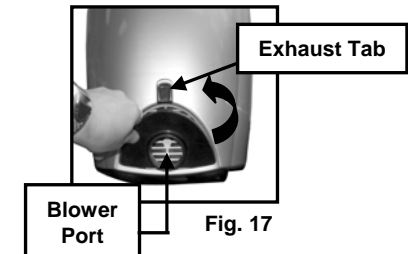


Fig. 17

- To attach the hose to the blower port, align the flexible hose and turn counter-clockwise until it stops. The hose is now securely in place. (Fig. 18)



Fig. 18